

http://dx.doi.org/10.11646/zootaxa.4097.1.11  
http://zoobank.org/urn:lsid:zoobank.org:pub:C03779A8-EFF5-4181-AB6D-3343FF7F46D5

## ***Pseudolycoriella skusei* sp. nov. (Diptera: Sciaridae), a new dark-winged fungus gnat from Norfolk Island and Australia**

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The genus *Pseudolycoriella* Menzel & Mohrig, 1998 is distributed worldwide and especially species rich within the southern hemisphere. Within the Australasian region it is known from New Zealand (Mohrig & Jaschhof 1999; 5 species), New Caledonia (Köhler & Menzel 2013; 14 species) and Papua-New Guinea (Mohrig 2013; 22 species). Here we report the first records of the genus from Norfolk Island and Australia.

Norfolk Island, a small subtropical island, lies isolated in the south-west Pacific Ocean approximately 1400 km east of Brisbane, Australia, roughly mid-way between New Caledonia and New Zealand. The island is of volcanic origin and was formed about 3 million years ago (Jones & McDougall 1973).

Radio-carbon dating suggests Polynesians were present on Norfolk Island between the 13<sup>th</sup> and 15<sup>th</sup> centuries A.D. (Anderson & White 2001). The first European visitor was Captain James Cook, in 1774, when he briefly landed with a few of his crew while en route to New Zealand (Mound & Wells 2015). In 1788, a penal colony was established, to accommodate convicts from New South Wales and subsequently from Van Diemen's Land (Tasmania). The colony was finally abandoned in 1855, and the following year the island was resettled by Pitcairn Islanders, descendants of the *Bounty* mutineers.

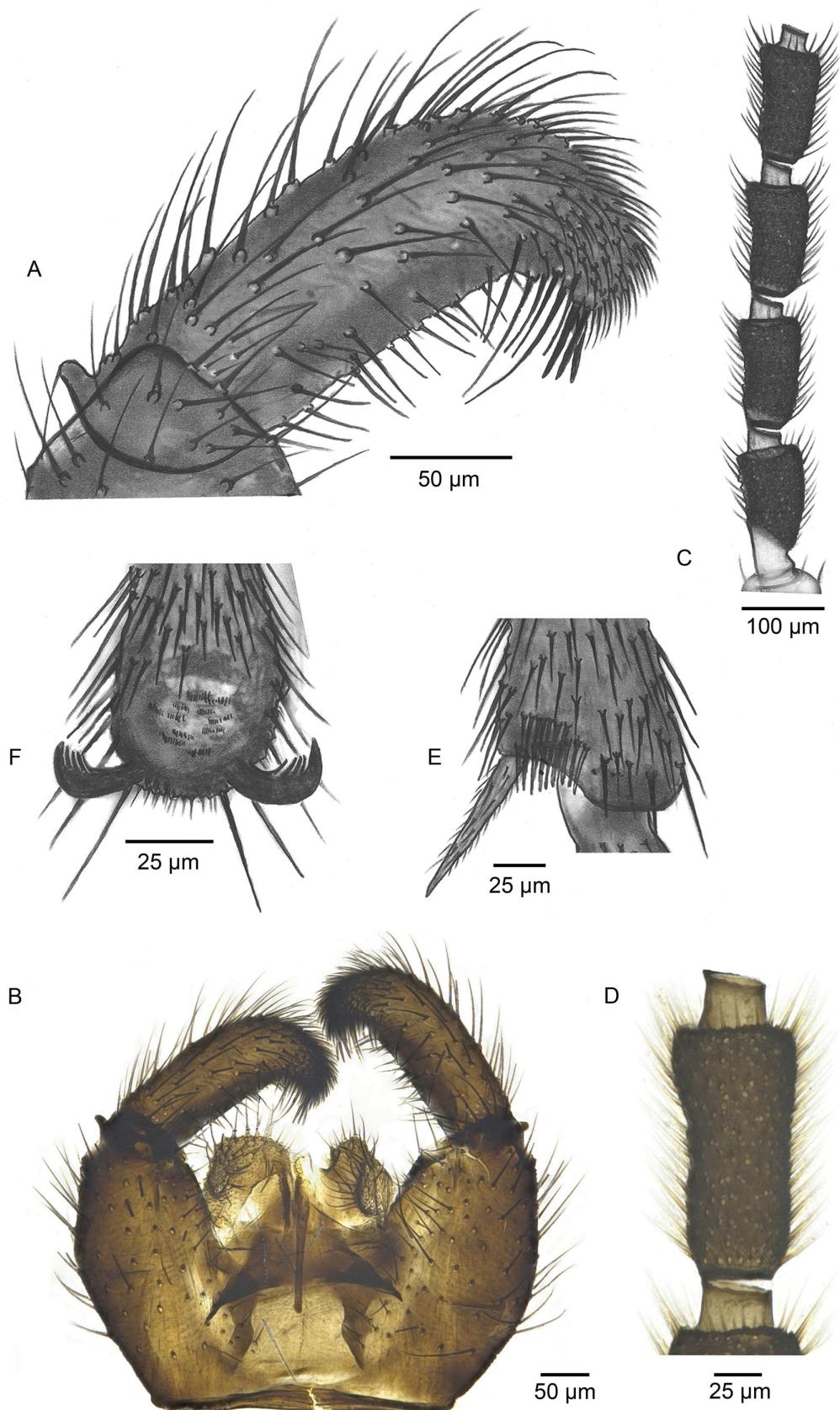
The island has been extensively deforested since settlement and subsequent deliberate and accidental introductions of various plant species has further modified the landscape (Mound & Wells 2015). Insects on the island comprise a mix of endemic, native and adventive species (as defined by Mound & Wells 2015). Mechanisms of introduction to the island presumably include natural colonization i.e. active migration and passive wind dispersal, transoceanic (via logs and other floating detritus) and human assisted movement (accidental or intentional introductions); however the precise mechanism of introduction isn't clear in most cases. See Bickel (2009) for a discussion on the biogeography of Diptera in the Southwest Pacific region, Holloway (1977) for a detailed account of the biogeography of Norfolk Island insects, with a focus on the Lepidoptera, and Mound & Wells (2015) in relation to thrips (Thysanoptera).

### **Material and methods**

The specimens were caught by yellow pan and malaise traps, stored in 80% ethanol and embedded in Canada balsam after dehydration in 96% ethanol (30 min.) and beechwood creosote (at least 10 min.). Each specimen was then transferred to the middle of a microscope slide using needles. The hypopygium was dissected from the body and the body was placed in a drop of Canada balsam under a coverslip with the hypopygium then being transferred separately into another small drop of Canada balsam placed next to the body on the same slide. With the aid of a stereomicroscope the hypopygium was arranged with the ventral side upwards and covered with a separate cover slip.

Illustrations with respective size measurements were created using digital images taken with a Keyence VHX-2000 digital microscope and stacking software. Photographs were modified using Adobe Photoshop software. Prints were then enhanced by hand drawing over the photos to reveal features that may ordinarily have been missed using photos alone. After final scanning and corrections using Photoshop they were finalized for publication.

**Abbreviations:** l/w-index = length/width of the 4<sup>th</sup> flagellomere; c/w = ratio of C and w within the space between R<sub>5</sub> and M<sub>1</sub>; x/y = wing vein bM/wing vein r-m, pbd = photo based drawing; PWMP—Private collection of Werner Mohrig, Poseritz, Germany.



**FIGURE 1.** Male *Pseudolycoriella skusei* sp. nov. (holotype). (A) Gonostylus, (B) Hypopygium, ventral view. (C) antennal flagellomeres I–IV, (D) antennal flagellomere IV, (E) apical part of fore tibia, (F) apical tarsal segment with toothed claws (photo-based drawings).

### *Pseudolycoriella skusei* sp. nov. (Fig 1)

**Material examined.** Holotype, male. NORFOLK ISLAND: Norfolk Island National Park, near Selwyn Pine Road entrance ( $29^{\circ}0'53"S$ ,  $167^{\circ}56'47"E$ ), collected 25.xii.2012 by L. Mound & A. Wells from yellow pan trap set under Norfolk Island pine tree (*Araucaria heterophylla*) as part of Norfolk Island Quarantine Survey (NI\_053-11). The specimen will be lodged in the Australian National Insect Collection, CSIRO, Canberra, Australia. Paratype, male. AUSTRALIA: collected 8.viii.1997 by J. Seymour from Malaise trap, Mt. Lewis, 37 km WSW of Port Douglas, Queensland ( $16^{\circ}35'S$ ,  $145^{\circ}16'E$ )(PWMP).

**Description. Male.** Head: Dark brown, ovoid, mouth parts short, clypeus bulbous; eye bridge 3–4 facets wide; antenna rather long, with yellowish-brown scape and pedicel; flagellomeres blackish-brown; necks pale, with darker ends (bicoloured); 4th flagellomere with a l/w-index of 2.2, setae bristle-like and as long as half of the diameter of basal part. Palp long, three-segmented; basal segment with 3–4 bristles and without a deepened patch of sensillae; third segment longer than basal segment.

**Thorax:** Brown; scutum with short and fine pubescence and three darker stripes; scutellum without longer marginal setae; postpronotum bare; katepisternum with darker corner. Wing brownish, with distinct veins;  $R_1 = 3/4 R$ ;  $R_5$  with ventral macrotrichia in the distal third; C longer than  $1/2 w$ ; y longer than x, without macrotrichia; Cu-stem shorter than x; posterior wing veins without macrotrichia. Haltere brown. Fore coxa yellowish-brown, mid and hind coxa brown; femora yellowish-brown, tibiae and tarsal segments darker brown; inner apex of fore tibia with an irregular row-like patch of bristles, not distinctly bordered; spurs of middle and hind tibia of same size, brownish and as long as the diameter of apex; claws toothed.

**Abdomen:** Brownish; tergal and sternal setae moderately short and sparse; Hypopygium dark brown, intergonocoxal space bare, inner ventral margin of gonocoxite sparsely haired, with longer setae in the apical half; gonostylus elongate, narrow, apically curved; with three distinct sub-apical dark spines of the same size and three longer whiplash hairs; the inner dorsal side with rather long setae. Tegmen pyramid-like, much higher than broad, membranous at the end; aedeagus long. Body length: 4.5 mm.

**Remarks.** This large species is characterized by a long and narrow gonostylus with three subequal, long apical spines and two longer whiplash hairs; claws strongly toothed; antennal flagellomeres robust and blackish-brown, with rather long bicoloured necks; three dark stripes on mesonotum and a long pyramid-like tegmen with a membranous apex. Two species from New Caledonia (*P. trispicata* Vilkamaa, Hippa & Mohrig and *P. tenuis* Vilkamaa, Hippa & Mohrig) also have three subapical spines, but differ significantly in having a shorter tegmen, shorter flagellomeres, and fewer whiplash hairs. The paratype from Queensland differs in having a lesser contrast-rich body colour: the scape and pedicel are brownish as are the flagellomeres, all the coxae are dark brown and the legs are uniformly brownish.

**Etymology.** We dedicate this new species to Frederick Arthur Askew Skuse (1866–1896), an English-Australian entomologist who was a pioneering worker on the Australian Sciaridae.

### Acknowledgements

This work was undertaken as part of the Norfolk Island Quarantine Survey 2012–2014, supported by the Administration of Norfolk Island (Permit No. 699). We thank Dr Laurence Mound (CSIRO), Dr Alice Wells (Department of Environment), Dr Glynn Maynard, Ben Boyd, Bill Crowe and Mark Whattam (Department of Agriculture and Water Resources) for assistance and support. We also thank Neil Tavener (Quarantine Officer on Norfolk Island) for provision of laboratory facilities on the island. Kai Heller and an anonymous reviewer provided helpful comments on a previous version of the manuscript.

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